Homework based on p. 222 to 234 textbook ----------15 points

1. Assume that the short run cost and demand data given in the table below confront a monopolistic competitor selling a given product and engaged in a given amount of product promotion. Compute the marginal cost and marginal revenue of each unit of output and enter these figures in the table.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Output** | **Total cost** | **Marginal cost** | **Quantity demanded** | **Price** | **Marginal revenue** |
| 0 | $ 25 |  | 0 | $60 |  |
| 1 | 40 | $\_\_\_\_\_ | 1 | 55 | $\_\_\_\_\_ |
| 2 | 45 | \_\_\_\_\_ | 2 | 50 | \_\_\_\_\_ |
| 3 | 55 | \_\_\_\_\_ | 3 | 45 | \_\_\_\_\_ |
| 4 | 70 | \_\_\_\_\_ | 4 | 40 | \_\_\_\_\_ |
| 5 | 90 | \_\_\_\_\_ | 5 | 35 | \_\_\_\_\_ |
| 6 | 115 | \_\_\_\_\_ | 6 | 30 | \_\_\_\_\_ |
| 7 | 145 | \_\_\_\_\_ | 7 | 25 | \_\_\_\_\_ |
| 8 | 180 | \_\_\_\_\_ | 8 | 20 | \_\_\_\_\_ |
| 9 | 220 | \_\_\_\_\_ | 9 | 15 | \_\_\_\_\_ |
| 10 | 265 | \_\_\_\_\_ | 10 | 10 | \_\_\_\_\_ |

(a) At what output level and at what price will the firm produce in the short run? What will be the total profit?

(b) What will happen to demand, price, and profit in the long run?

2. If monopolistically competitive firms have some control over their prices, why don’t they set price above average total cost so they will realize an economic profit in the long run?

3. Explain how monopolistically competitive producers try to improve on the condition of just breaking even in the long run. Is this improvement a benefit for consumers?

4. Consider the following payoff matrix in which the numbers indicate the profit in millions of dollars for a duopoly based either on a high-price or a low-price strategy.

|  |  |  |
| --- | --- | --- |
|  | **Firm A** | |
|  | **High-price** | **Low-price** |
| **High-price** | A = $500  B = $500 | A = $650  B = $300 |
|  | **Firm B** | |
| **Low-price** | A = $300  B = $650 | A = $400  B = $400 |

(a) What will be the result when each firm chooses a high-price strategy?

(b) What will be the result when Firm A chooses a low-price strategy while Firm B maintains a high-price strategy?

(c) What will be the result when Firm B chooses a low-price strategy while Firm A maintains a high-price strategy?

(d) What will be the result when each firm chooses a low-price strategy?

(e) What two conclusions can you draw about collusion?

5. Explain in nontechnical terms why oligopolistic prices may tend to be inflexible.

An oligopolist will hesitate to raise its prices in the absence of collusion because if its rivals do not follow with price rises of their own the firm will lose market share to these rivals. The oligopolist will also hesitate to lower its price because it assumes that its few rivals will immediately feel the impact in terms of lost market share, and they will also have to lower their prices to maintain their market position. Since each oligopolist will be reluctant to raise or lower prices in the absence of collusion, this leads to inflexible prices. [text: E pp. 234-236; MI pp. 234-236]

1. Assume that the short run cost and demand data given in the table below confront a monopolistic competitor selling a given product and engaged in a given amount of product promotion. Compute the marginal cost and marginal revenue of each unit of output and enter these figures in the table.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Output** | **Total cost** | **Marginal cost** | **Quantity demanded** | **Price** | **Marginal revenue** |
| 0 | $ 25 |  | 0 | $60 |  |
| 1 | 40 | $\_\_\_\_\_ | 1 | 55 | $\_\_\_\_\_ |
| 2 | 45 | \_\_\_\_\_ | 2 | 50 | \_\_\_\_\_ |
| 3 | 55 | \_\_\_\_\_ | 3 | 45 | \_\_\_\_\_ |
| 4 | 70 | \_\_\_\_\_ | 4 | 40 | \_\_\_\_\_ |
| 5 | 90 | \_\_\_\_\_ | 5 | 35 | \_\_\_\_\_ |
| 6 | 115 | \_\_\_\_\_ | 6 | 30 | \_\_\_\_\_ |
| 7 | 145 | \_\_\_\_\_ | 7 | 25 | \_\_\_\_\_ |
| 8 | 180 | \_\_\_\_\_ | 8 | 20 | \_\_\_\_\_ |
| 9 | 220 | \_\_\_\_\_ | 9 | 15 | \_\_\_\_\_ |
| 10 | 265 | \_\_\_\_\_ | 10 | 10 | \_\_\_\_\_ |

(a) At what output level and at what price will the firm produce in the short run? What will be the total profit?

(b) What will happen to demand, price, and profit in the long run?

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Output** | **Total cost** | **Marginal cost** | **Quantity demanded** | **Price** | **Marginal revenue** |
| 0 | $ 25 |  | 0 | $60 |  |
| 1 | 40 | $15 | 1 | 55 | $55 |
| 2 | 45 | 5 | 2 | 50 | 45 |
| 3 | 55 | 10 | 3 | 45 | 35 |
| 4 | 70 | 15 | 4 | 40 | 25 |
| 5 | 90 | 20 | 5 | 35 | 15 |
| 6 | 115 | 25 | 6 | 30 | 5 |
| 7 | 145 | 30 | 7 | 25 | –5 |
| 8 | 180 | 35 | 8 | 20 | –15 |
| 9 | 220 | 40 | 9 | 15 | –25 |
| 10 | 265 | 45 | 10 | 10 | –35 |

(a) The firm will produce 4 units of output. At that level, marginal revenue ($25) is greater than marginal cost ($15), but as close to equality as possible. Total profit will be $90 ($160 – $70).

(b) The demand for the firm’s product will decrease until price equals average cost and total profits are zero.

[text: E pp. 225-227; MI pp. 225-227]

2 . If monopolistically competitive firms have some control over their prices, why don’t they set price above average total cost so they will realize an economic profit in the long run?

Entry is relatively easy in monopolistic competition. If a representative firm is earning economic profits in the short run, this condition will not persist as new firms enter the industry with the expectation of earning economic profits. As new firms enter, the demand curve faced by the typical firm will fall and become more elastic which tends to cause the disappearance of economic profits.

Economic profits might persist in a few cases where product differentiation is very strong, or because some firm has some sort of permanent advantage such as location or especially effective advertising. [text: E p. 227; MI p. 227]

3. Explain how monopolistically competitive producers try to improve on the condition of just breaking even in the long run. Is this improvement a benefit for consumers?

Firms use product differentiation and product improvement as a long-run strategy to make their products significantly different from those produced by their rivals. The use of these tactics can make a product unique and tend to make the demand for the product more inelastic. They can also increase the demand for the product, which would increase the firm’s profits when costs remain constant or increase at a slower rate than revenues.

Product differentiation is achieved through differences in product quality and the introduction of new brands, types, styles, and other forms of nonprice competition. Product improvement encourages technological innovation and change that makes a product better over time.

Whether product differentiation and product improvement contribute substantially to more consumer welfare is a debatable question, and there are trade-offs. Consumers will enjoy more choice and variety in the selection of products under monopolistic competition, but it also creates more excess capacity and economic inefficiency. [text: E pp. 227-228; MI pp. 227-228]

4. .Consider the following payoff matrix in which the numbers indicate the profit in millions of dollars for a duopoly based either on a high-price or a low-price strategy.

|  |  |  |
| --- | --- | --- |
|  | **Firm A** | |
|  | **High-price** | **Low-price** |
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(a) What will be the result when each firm chooses a high-price strategy?

(b) What will be the result when Firm A chooses a low-price strategy while Firm B maintains a high-price strategy?

(c) What will be the result when Firm B chooses a low-price strategy while Firm A maintains a high-price strategy?

(d) What will be the result when each firm chooses a low-price strategy?

(e) What two conclusions can you draw about collusion?

(a) Each firm will earn $500 million in profit for a total of $1000 million for the two firms.

(b) Firm A will earn $650 million and Firm B will earn $300 million. Compared to the high-price strategy, Firm A has an incentive to cut prices because it will earn $150 million more in profit and Firm B will earn $200 million less in profit. Together, the firms will earn $950 million in profit, which is $50 million less than with a high-price strategy.

(c) Firm B has an incentive to cut prices because it will earn $650 million and Firm A will earn $300 million. Compared to a high-price strategy, Firm B will earn $150 million more in profit and Firm A will earn $200 million less in profit. Together, the firms will earn $950 million in profit, which is $50 million less than with a high-price strategy.

(d) Each firm will earn $400 million in profit for a total of $800 million for the two firms. This total is $200 million less than with a high-price strategy.

(e) (1) The two firms have a strong incentive to collude and adopt the high-price strategy because there is the potential for $200 million more in profit for the two firms than with a low-price strategy, or the potential for $50 million more for the two firms than with a mixed-price strategy.

(2) There is also a strong incentive for each firm to cheat on the agreement and adopt a low-price strategy when the other firm maintains a high-price strategy because this situation will produce $150 million more in profit for the cheating firm compared to honoring a collusive agreement for a high-price strategy.

[text: E pp. 232-233; MI pp. 232-233]